



STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM
INJECTION WELL PERMIT APPLICATION
(TO DRILL, DEEPEN, PLUG BACK, OR CONVERT AN EXISTING WELL)

FORM OGC-31

NOTE ►

Permit approval for drilling only, not injection. Approval or denial for injection determined after Mechanical Integrity Test results reviewed and official notification given.

☒ APPLICATION TO DRILL ☐ DEEPEN ☐ PLUG BACK ☐ FOR AN OIL WELL ☐ OR GAS WELL

NAME OF COMPANY OR OPERATOR

Kansas Resource Exploration & Development, LLC

DATE

07/28/2012

ADDRESS

9393 W 110th Street, Suite 500

CITY

Overland Park

STATE

KS

ZIP CODE

66210

DESCRIPTION OF WELL AND LEASE

NAME OF LEASE

Belton Unit

WELL NUMBER

RW-76

ELEVATION (GROUND)

1069'

WELL LOCATION

(GIVE FOOTAGE FROM SECTION LINES)

3478 ft. from ☐ North ☒ South section line 3198 ft. from ☒ East ☐ West section line

WELL LOCATION

Sec. 16 Township 46 North Range 33 ☐ East ☒ West

LATITUDE

N38 48' 42.713"

LONGITUDE

W94 34' 41.894"

COUNTY

Cass 037

NEAREST DISTANCE FROM PROPOSED LOCATION TO PROPERTY OR LEASE LINE 786 FEET ✓

DISTANCE FROM PROPOSED LOCATION TO NEAREST DRILLING, COMPLETED OR APPLIED - FOR WELL ON THE SAME LEASE 10 FEET

PROPOSED DEPTH

650 feet 419'

ROTARY OR CABLE TOOLS

Rotary

DRILLING CONTRACTOR, NAME AND ADDRESS

Utah Oil, LLC

APPROX. DATE WORK WILL START

08/15/2012

NUMBER OF ACRES IN LEASE

560

NUMBER OF WELLS ON LEASE INCLUDING THIS WELL, COMPLETED IN OR DRILLING TO THIS RESERVOIR 124

NUMBER OF ABANDONED WELLS ON LEASE 0

IF LEASE PURCHASED WITH ONE OR MORE WELLS DRILLED, FROM WHOM PURCHASED?

NAME DE Exploration

ADDRESS 4595 Highway K33, Wellsville, KS 66092

NO. OF WELLS

PRODUCING 71

INJECTION 44

INACTIVE 8

ABANDONED 0

STATUS OF BOND

☐ SINGLE WELL

AMOUNT \$

☒ BLANKET BOND

AMOUNT \$ 160,000

☒ ON FILE

☐ ATTACHED

REMARKS: (IF THIS IS AN APPLICATION TO DEEPEN OR PLUG BACK, BRIEFLY DESCRIBE WORK TO BE DONE, GIVING PRESENT PRODUCING/INJECTION ZONE AND EXPECTED NEW INJECTION ZONE; USE BACK OF FORM IF NEEDED)

PROPOSED CASING PROGRAM

APPROVED CASING - TO BE FILLED IN BY STATE GEOLOGIST

| AMOUNT | SIZE | WT/FT | CEM. | AMOUNT | SIZE | WT/FT | CEM. |
|--------|--------|-------|---------|--------|--------|-------|-------------|
| 20' | 7" | 14 | 8 sks | 20' | 7" | 14 | |
| 650' | 2 7/8" | 6.5 | 100 sks | 650' | 2 7/8" | 6.5 | Full length |
| | | | | | | | |
| | | | | | | | |

I, the Undersigned, state that I am the COO of the KRED (Company), and that I am authorized by said company to make this report, and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct, and complete to the best of my knowledge.

SIGNATURE

JK

DATE

10/10/12

PERMIT NUMBER

20985

APPROVED DATE

12-20-12

APPROVED BY

Joseph A. [Signature]

☒ DRILLER'S LOG REQUIRED

☒ E-LOGS REQUIRED IF RUN

☒ CORE ANALYSIS REQUIRED IF RUN

☒ DRILL SYSTEM TEST INFO REQUIRED IF RUN

☐ SAMPLES REQUIRED

☒ SAMPLES NOT REQUIRED

☐ WATER SAMPLES REQUIRED AT

NOTE ►

THIS PERMIT NOT TRANSFERABLE TO ANY OTHER PERSON OR TO ANY OTHER LOCATION. APPROVAL OF THIS PERMIT BY THE OIL AND GAS COUNCIL DOES NOT CONSTITUTE ENDORSEMENT OF THE GEOLOGIC MERITS OF THE PROPOSED WELL NOR ENDORSEMENT OF THE QUALIFICATIONS OF THE PERMITTEE

I, Leech of the Utah (Company), confirm that an approved drilling permit has been obtained by the owner of this well. Council approval of this permit will be shown on this form by presence of a permit number and signature of authorized council representative.

DRILLER'S SIGNATURE

DATE

10/9/12

PROPOSED OPERATIONS DATA

| | |
|---|--|
| PROPOSED AVERAGE DAILY INJECTION, | PRESSURE <u>300</u> PSIG, RATE <u>.035</u> BPD/GPM VOLUME <u>50</u> BBL/GAL |
| APPROVED AVERAGE DAILY INJECTION, (TO BE FILLED IN BY STATE GEOLOGIST) | PRESSURE <u>300</u> PSIG, RATE <u>.035</u> BPD/GPM, VOLUME <u>50</u> BBL/GAL |
| PROPOSED MAXIMUM DAILY INJECTION, | PRESSURE <u>300</u> PSIG, RATE <u>.035</u> BPD/GPM VOLUME <u>50</u> BBL/GAL |
| APPROVED MAXIMUM DAILY INJECTION, (TO BE FILLED IN BY STATE GEOLOGIST) | PRESSURE <u>300</u> PSIG, RATE <u>.035</u> BPD/GPM, VOLUME <u>50</u> BBL/GAL |
| ESTIMATED FRACTURE PRESSURE GRADIENT OF INJECTION ZONE <u>0.43</u> PSI/FOOT | |

DESCRIBE THE SOURCE OF THE INJECTION FLUID Squirrel sandstone produced water and rural water

NOTE ► SUBMIT AN APPROPRIATE ANALYSIS OF THE INJECTION FLUID. (SUBMIT ON SEPARATE SHEET)

DESCRIBE THE COMPATIBILITY OF THE PROPOSED INJECTION FLUID WITH THAT OF THE RECEIVING FORMATIONS, INCLUDING TOTAL DISSOLVED SOLIDS COMPARISONS

We have been using these injection fluids since the waterflood began with no issues. The formations respond to injection fluids. The injection fluids consist of recycled formation water and fresh water.

GIVE AN ACCURATE DESCRIPTION OF THE INJECTION ZONE INCLUDING LITHOLOGIC DESCRIPTIONS, GEOLOGIC NAME, THICKNESS, DEPTH, POROSITY, AND PERMEABILITY.

The upper, middle, and lower Squirrel Sandstone depth ranges from 500-600 feet with an average thickness of 90 feet. The upper Squirrel is generally 30 feet thick with 21% average porosity and 172 millidarcy's average permeability. The middle Squirrel is generally 20 feet thick with 22% average porosity and 1,000 millidarcy's average permeability. The lower Squirrel is generally 40 feet thick with 20.5% average porosity and 593 millidarcy's average permeability.

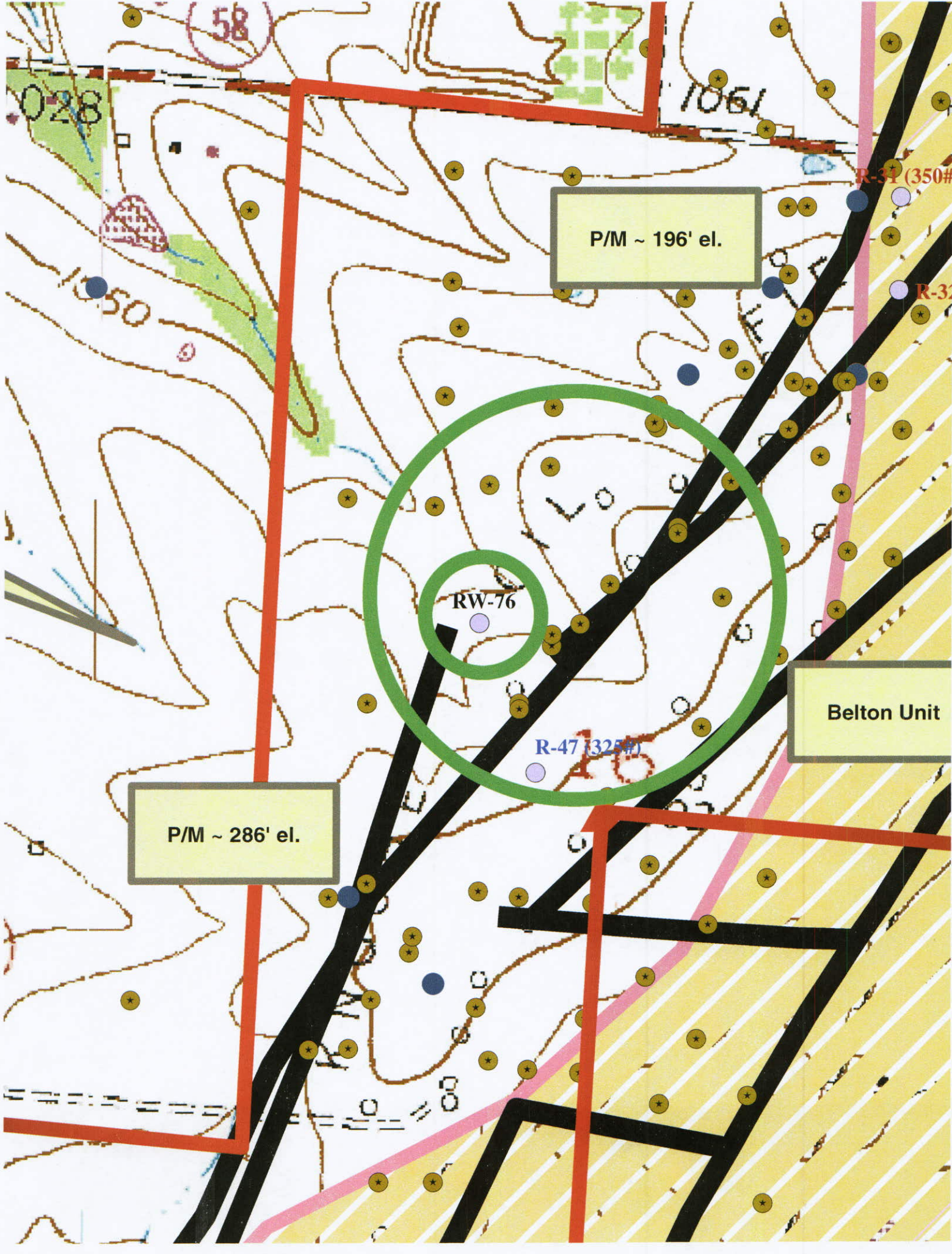
GIVE AN ACCURATE DESCRIPTION OF THE CONFINING ZONES INCLUDING LITHOLOGIC DESCRIPTION, GEOLOGIC NAME, THICKNESS, DEPTH, POROSITY, AND PERMEABILITY.

The confining layers of the Squirrel Sandstone consist of the the Fort Scott group above the sandstone and the Verdigris formation below the sandstone. The Fort Scott contains two prominent shales, the Blackwater Creek and the Excello, as well as the Blackjack Creek limestone that has a total thickness of 30-50 feet. The Verdigris formation consists of the the Ardmore limestone member and the Oakley shale with a total thickness of 20-40 feet. The zones are impermeable at less than 3% porosity.

SUBMIT ALL AVAILABLE LOGGING AND TESTING DATA ON THE WELL

GIVE A DETAILED DESCRIPTION OF ANY WELL NEEDING CORRECTIVE ACTION THAT PENETRATES THE INJECTION ZONE IN THE AREA OF REVIEW (1/2 MILE RADIUS AROUND WELL). INCLUDE THE REASON FOR AND PROPOSED CORRECTIVE ACTION.

No corrective action needed.



58

1028

1061

R-31 (350#)

P/M ~ 196' el.

1050

R-32

RW-76

R-47 (325#)

Belton Unit

P/M ~ 286' el.



STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM
INJECTION WELL LOCATION PLAT

RECEIVED

FORM OGC-41

AUG 06 2012

| | | | |
|--|--|--|--|
| OWNER'S NAME Kansas Resource Exploration & Development, LLC (K.R.E.D) | | Mo Oil & Gas Council | |
| LEASE NAME Belton Unit - RW-76 | | COUNTY Cass | |
| WELL LOCATION (GIVE FOOTAGE FROM SECTION LINES) 3478 ft. from <input type="checkbox"/> North <input checked="" type="checkbox"/> South section line 3198 ft. from <input checked="" type="checkbox"/> East <input type="checkbox"/> West section line | | | |
| WELL LOCATION Sec. 16 Township 46 North Range 33 <input type="checkbox"/> East <input checked="" type="checkbox"/> West | | | |
| LATITUDE N38° 48' 42.713" ✓ | | LONGITUDE W94° 34' 41.894" ✓ | |
| | | | |
| REMARKS Section 16 is an irregular section and larger than one square mile. Plat Map Scale - 1 Square = 682.25 feet ✓ | | | |
| INSTRUCTIONS On the above plat, show distance of the proposed well from the two nearest section lines, the nearest lease line, and from the nearest well on the same lease completed in or drilling to the same reservoir. Do not confuse survey lines with lease lines. See rule 10 CSR 50-2.030 for survey requirements. Lease lines must be marked. | | This is to certify that I have executed a survey to accurately locate oil and gas wells in accordance with 10 CSR 50-2.030 and that the results are correctly shown on the above plat. | |
| REGISTERED LAND SURVEY | | NUMBER | |



Missouri Department of Natural Resources

Geographic Information Systems

Check Location

Select a coordinate format, enter a pair of coordinates in the boxes below it, and then press the SUBMIT button. Please be patient while your information is retrieved. Your coordinates will be converted to the other formats, the information on the right-hand side of the page will be filled in based on your coordinates, and a map will be generated. NOTE: All coordinates must use the North American Datum of 1983 (NAD83).

☐ Universal Transverse Mercator
[Zone 15 North]

Easting

362966.95729445404 meters

Northing

4297082.468296827 meters

☐ Decimal Degrees

Latitude

38.8118647222222 °

Longitude

-94.5783038888888 °

☒ Degrees, Minutes and Seconds

Latitude Degrees

38 °

Latitude Minutes

48 '

Latitude Seconds

42.713 "

Longitude Degrees

-94 °

Longitude Minutes

34 '

Longitude Seconds

41.894 "

| | |
|---|---------------------------------------|
| UTM Zone 15N [Easting, Northing] | [362966.9, 4297082.4] meters |
| Decimal Degrees [Lat, Lon] | [38.811864°, -94.578304°] |
| Deg, Min, Sec [Lat, Lon] | [38° 48' 42.7", -94° 34' 41.8"] |
| County Name | Cass |
| County FIPS Code | 037 |
| Legal Description | Section 16 T46N R33W |
| Municipality | NO VALUE |
| House District | 123 |
| Senate District | 31 |
| Congressional District | 5 |
| MoDNR Region | Kansas City Regional Office |
| USGS 1:24,000 Quadrangle | Belton [38094-G5] |
| 8 Digit Watershed | 10300101 [Lower Missouri-Crooked] |
| 10 Digit Watershed | 1030010101 [Blue River] |
| 12 Digit Watershed | 103001010104 [Camp Branch-Blue River] |
| Special Well Drilling Area | Area 2 |
| Ecological Drainage Unit | Central Plains/Blackwater/Lamine |
| Level III Ecoregion | Central Irregular Plains |
| Query Time | 6.015 s |

Rows with **red** text indicate that the input location is too close to a boundary to produce reliable results.

NOTE: A result of 'NO VALUE' is usually an indication that no data was found for the location. For example, not every point in Missouri will lie within a municipal boundary, so some will result in a 'NO VALUE'. If 'County Name' results in 'NO VALUE', your point probably lies outside the state.

Well ID: #005390

Elev. 1069

$\frac{IP}{M}$: 229' elev. $IP_c - M$: 345'

Well ID #026255













IP_c : 535' TD

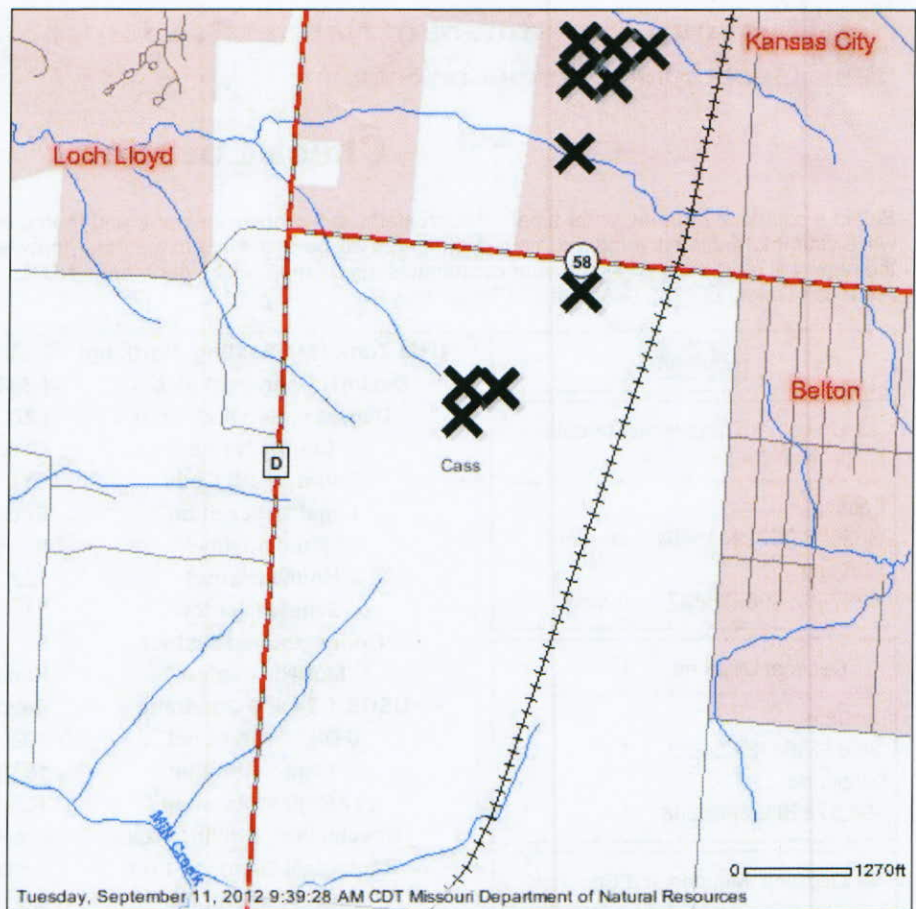
1069-535-345

\Rightarrow ~189' elev. $\frac{IP}{M}$

Metadata

- Interstate Highways
- US Highways
- State Highways
- Railroad
- Major and Minor Roads
- County Boundary
- Lakes
- Major Rivers
- Rivers and Streams
- Missouri River
- Mississippi River
- Municipal

- Legend**
-  Interstate Highways
 -  US Highways
 -  State Highways
 -  Railroad
 -  Major and Minor Roads
 -  County Boundary
 -  Lakes
 -  Major Rivers
 -  Rivers and Streams
 -  Missouri River
 -  Mississippi River
 -  Municipal



View Scale 1:24,000

DISCLAIMER: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



Missouri
Department of
Natural Resources

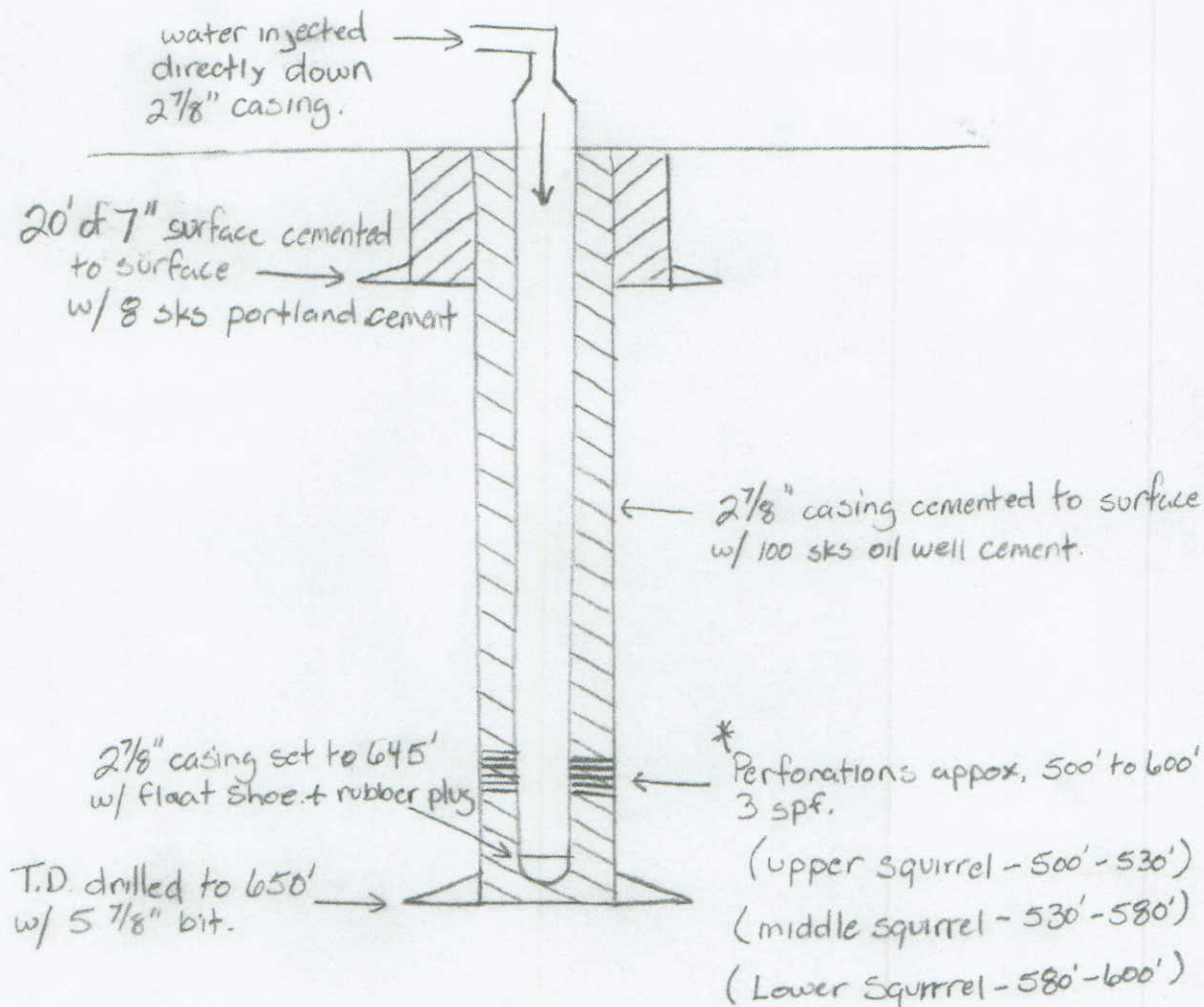
P.O. Box 176, Jefferson City, MO 65102
800-361-4827 / 573-751-3443
E-mail: contact@dnr.mo.gov



STATE OF MISSOURI
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY PROGRAM
INJECTION WELL SCHEMATIC

OGC-11

| | | | |
|----------------|---------------|---|-----------------------------|
| COUNTY Cass | PERMIT NUMBER | OPERATOR Kansas Resource Exploration & Development | WELL NUMBER RW-76 |
|----------------|---------------|---|-----------------------------|



* Upper, middle and lower Squirrel sections confined by shale and limestone.

INSTRUCTIONS ON THE ABOVE SPACE DRAW A NEAT, ACCURATE SCHEMATIC DIAGRAM OF THE APPLICANT INJECTION WELL, INCLUDING THE FOLLOWING: CONFIGURATION OF WELLHEAD, TOTAL DEPTH OR PLUG BACK TOTAL DEPTH, DEPTH OF ALL INJECTION OR DISPOSAL INTERVALS, AND THEIR FORMATION NAMES, LITHOLOGY OF ALL FORMATIONS PENETRATED, DEPTHS OF THE TOPS AND BOTTOMS OF ALL CASING AND TUBING, SIZE AND GRADE OF ALL CASING AND TUBING, AND THE TYPE AND DEPTH OF PACKER, DEPTH, LOCATION, AND TYPE OF ALL CEMENT, DEPTH OF ALL PERFORATIONS AND SQUEEZE JOBS, AND GEOLOGIC NAME AND DEPTH TO BOTTOM OF ALL UNDERGROUND SOURCES OF DRINKING WATER WHICH MAY BE AFFECTED BY THE INJECTION. USE BACK IF ADDITIONAL SPACE IS NEEDED, OR ATTACH SHEET.

Well Schematic, Continued

The surface casing is 7" in diameter and is new, limited service grade pipe. The 7" is drifted and tested to 7,000 lbs. and weighs at least 17 lbs. per foot. The surface casing will be set to a minimum depth of 20 feet and extend 6 inches above the surface. Approximately 8 sacks of Portland cement will be circulated to surface and will secure the well and ensure the contents of the well bore are sealed off from sources of drinking water. The production casing used is 2 7/8" EUE upset, drifted and tested to 7,000 lbs. No tubing will be ran in the injection wells, the injection fluid will be injected directly down the 2 7/8" casing. The total depth of the well will be approximately 650 feet drilled with a 5 5/8" bit. A 2 7/8" flapper type float shoe will be set at the base of the 2 7/8" casing pipe (645 feet) with centralizers installed to center the casing inside the well bore for better cement bonding. The 2 7/8" casing will be cemented from 650 feet to surface using a 2 7/8" rubber plug for displacing the cement. Approximately 100 sacks of high-grade Oil Well cement will be used to cement all wells. This cement will ensure that no contents of the pipe will leave the well bore. The top of the 2 7/8" casing will extend approximately one foot above ground level. After the cement has cured and effectively bonded to the 2 7/8" casing, perforations will be made in the Squirrel Sandstone formation from approximately 500-600 feet, depending on where the oil sand is present at this particular location. Wells will be shot with 3 perforations per foot where the squirrel sandstone oil reservoir is present and capable of water injection. No water sources are present at this depth and will not be affected by these perforations or the injection. The relevant sources of drinking water are located less than 20 feet below surface. The 7" surface pipe and durable Portland cement ensures these water sources will remain free from contamination from drilling and injection activity. Other sources of potential usable water may be present, however not always potable, in the Pennsylvanian and Mississippian formations located approximately 150 feet or deeper below the base of the Squirrel Sandstone.

The lithology of all formations penetrated by the wellbore are as follows:

| <u>Formation</u> | <u>Total Depth (feet)</u> |
|------------------|---------------------------|
| Soil | 0 – 2 |
| Clay | 2 – 6 |
| Lime | 6 – 28 |
| Shale | 28 – 49 |
| Lime | 49 – 64 |
| Shale | 64 – 69 |
| Red Bed | 69 – 78 |
| Shale | 78 – 82 |

| | | |
|-------------------------|-----------|------------------------------|
| Lime | 82 – 87 | |
| Shale | 87 – 105 | |
| Gray Sand | 105 – 124 | |
| Shale | 124 – 128 | |
| Lime | 128 – 130 | |
| Shale | 130 – 147 | |
| Lime | 147 – 177 | |
| Shale (Slate 183 – 184) | 177 – 186 | |
| Lime | 186 – 204 | |
| Shale (Slate 207 – 208) | 204 – 209 | |
| Lime | 209 – 211 | |
| Shale | 211 – 214 | |
| Lime "Hertha" | 214 – 220 | Top Pawnee Limestone |
| Shale | 220 – 259 | |
| Lime | 259 – 260 | |
| Gray Sand "Knobtown" | 260 – 262 | |
| Shale | 262 – 324 | |
| Gray Sand | 324 – 329 | |
| Shale | 329 – 358 | |
| Gray Sand | 358 – 362 | Base Pawnee Limestone |
| Shale | 362 – 399 | Top Labette Shale |
| Lime | 399 – 401 | |
| Shale | 401 – 404 | |
| Lime | 404 – 406 | |
| Shale (Slate 411 – 412) | 406 – 417 | |
| Lime | 417 – 424 | |
| Shale | 424 – 427 | |
| Gray Sand | 427 – 431 | Base Labette Shale |

| | | |
|-------------------------|---------------|----------------------------------|
| Shale | 431 – 443 | Top Fort Scott |
| Lime | 443 – 448 | BlackJack Creek Limestone |
| Shale (Slate 452 – 453) | 448 – 469 | Summit Coal |
| Gray Sand | 469 – 471 | Base Fort Scott |
| Sdy. Shale | 471 – 501 | |
| Very laminated Sand | 501 – 502 | Top - Squirrel Sandstone |
| Sandy Lime | 502 – 503 | |
| Slightly lamin. Sand | 503 – 504 | |
| Sandy Lime | 504 – 505 | |
| Solid Sand | 505 – 506.5 | |
| Shale | 506.5 – 507 | |
| Slightly lamin. Sand | 507 – 507.5 | |
| Sandy Shale | 507.5 – 509.5 | |
| Solid Sand | 509.5 – 510.5 | |
| Sandy Lime | 510.5 – 511.5 | |
| Solid Sand | 511.5 – 515.5 | |
| Sandy Lime | 515.5 – 518 | |
| Solid Sand | 518 – 520 | |
| Sandy Lime | 520 – 521 | |
| Solid Sand | 521 – 525 | |
| Sandy Lime | 525 – 526 | |
| Laminated Sand | 526 – 527 | |
| Sandy Shale | 527 – 528.5 | |
| Sandy Lime | 528.5 – 530 | |
| Solid Sand | 530 – 533 | |
| Sandy Lime | 533 – 534 | |
| Sandy Shale | 534 – 535 | |
| Slightly laminated Sand | 535 – 536.5 | |

| | | |
|---------------------------|---------------|----------------------------------|
| Sandy Lime | 536.5 – 538 | |
| Solid Sand | 538 – 539 | |
| Lime and Shells | 539 – 541 | |
| Sand lamin. w/ Sandy Lime | 541 – 542 | |
| Lime and Shells | 542 – 543 | |
| Solid Sand | 543 – 544.5 | |
| Sandy Lime and Shells | 544.5 – 547.5 | |
| Sand and Shells | 547.5 – 548.5 | |
| Lime and Shells | 548.5 – 552 | |
| Solid Sand | 552 – 553 | |
| Lime and Shells | 553 – 555.5 | |
| Sand and Shells | 555.5 – 559.5 | |
| Lime and Shells | 559.5 – 563.5 | |
| Solid Sand | 563.5 – 582.5 | |
| Slightly laminated | 582.5 – 583.5 | |
| Shale and Shells | 583.5 – 587.5 | |
| Solid Sand | 587.5 – 590.5 | |
| Sand and Shells | 590.5 – 591.5 | |
| Solid Sand | 591.5 – 593 | |
| Lime | 593 – 593.5 | |
| Very laminated Sand | 593.5 – 596 | Base – Squirrel Sandstone |
| Shale (Slate 610 – 611) | 596 – 616 | Top – Verdigris |
| Lime | 616 – 617 | Ardmore Limestone |
| Shale (Slate 621 – 622) | 617 – 650 | Oakley Shale |

Belton Unit, Cass County, Missouri

Re: Closure Pressure

Attached is a reproduction from "*Production Operations, Vol. 2*" by Allen and Roberts describing the fracturing pressures in a reservoir.

The fracture propagation pressure is approximately the same as the closure pressure, although slightly higher. This difference is less significant in low pressure reservoirs such as the ones in the Cherokee Basin, consequently, they are considered to be the same. The fracture propagation pressure is the same as the instantaneous shut-in pressure (ISIP) experienced upon cessation of a hydraulic fracture treatment. The ISIP from a fracture procedure is the surface pressure measurement. Bottom-hole ISIP must be calculated by adding the surface ISIP and the product of the depth to mid-perforations (feet) and the pressure gradient of the fluid in the wellbore (psi/foot). For fresh water the fluid gradient is 0.434 psi/foot. Since the fluid in fracture operations is more dense than fresh water most engineers estimate the bottom-hole ISIP with a higher gradient. The state of Oklahoma uses a gradient of 0.50 psi/foot.

Utilizing ISIP's experienced at Belton, and a fresh water gradient of 0.434, the calculated bottom-hole ISIPs are:

| WELL | DEPTH TO MID-PERF | ISIP (Surface) | ISIP (Perfs) |
|--------|-------------------|----------------|--------------|
| R32 | 626 | 400 | 672 |
| R32 | 585 | 350 | 604 |
| R31 | 600 | 400 | 660 |
| R31 | 552 | 350 | 640 |
| R47 | 620 | 325 | 594 |
| AD20 | 536 | 400 | 633 |
| AD20 | 582.5 | 400 | 653 |
| AD9-2 | 610 | 400 | 665 |
| AD9-2 | 507 | 400 | 620 |
| AD16-2 | 544 | 400 | 636 |

The fracture propagation pressure is the pressure in which the aperture of the existing fractures can begin to be opened. An increase in injection rate is noted at this point on injection step-rate tests. At injection pressures at, or slightly above, the ISIP, the fractures in the immediate vicinity of the wellbore (inches) may be affected but not into the reservoir significantly. In actual injection operations of a waterflood at ISIP, fractures wouldn't be created beyond the region adjacent to the wellbore because of; 1) fluid leak-off into the formation, 2) the injection of a low viscosity fluid, and 3) the extremely low injection rates - far less than what is necessary to create a fracture.

minimum stress at the borehole, and must also overcome the tensile strength of the rock. This can be expressed as follows:

$$(P_i)_v = 3 \bar{\sigma}_{h2} - \bar{\sigma}_{h1} + S_t + P \quad (5)$$

where:

$(P_i)_v$ = borehole pressure required to initiate vertical fracture

$\bar{\sigma}_{h1}$ = maximum principal horizontal matrix stress

$\bar{\sigma}_{h2}$ = minimum principal horizontal matrix stress

S_t = horizontal tensile strength of rock

P = formation pore pressure

Penetrating Fluid Reduces Breakdown Pressure—

A penetrating fluid increases the area over which pressurized fluid contacts the formation and can reduce the pressure necessary to initiate fracturing.

Laboratory and theoretical work by Fairhurst and Haimson²¹ provides a basis for estimation of the magnitude of reduction in openhole. Generally reduction may be on the order of 25 to 40% in openhole.

Perforation Density and Orientation—Recent laboratory work in cased hole shows that breakdown or frac initiation pressure is affected by the number and arrangement of perforations.²⁵

The existence of casing and the arrangement of perforations have little effect on created fracture orientation, but breakdown pressure is reduced by increased number of perforations. The practice of perforating with all shots in a vertical line on one side of the casing, Figure 8-6 significantly increases

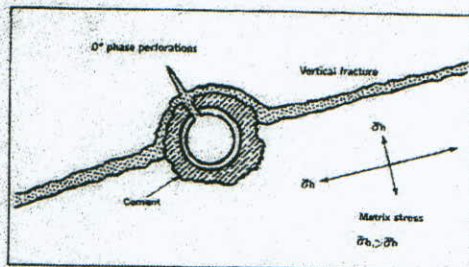


FIG. 8-6—Orientation of perforation vs. least horizontal matrix stress. Condition resulting in highest breakdown pressure.

breakdown pressure if the perforations happen to be oriented 90° to the azimuth of the vertical fracture plane. Orientation of perforations does not affect azimuth of the vertical fracture however.

Fracture Propagation

Once the fracture has been created and invaded by pressured fluid, the stress concentration near the wellbore is reduced, and the hydraulic pressure required to extend the fracture must merely overcome the component of the undisturbed stress field normal to the plane of the fracture.

Measuring Propagation Pressure and Frac Gradient—The fracture propagation pressure (and frac gradient) can be obtained during the fracturing operation by recording the wellhead pressure immediately after the pumps are shut down following injection into the fracture (Figure 8-7). Since the frac gradient is increased by increased pore pressure, this measurement should be made before the pore pressure is significantly raised by the injected frac fluid.

Wellhead instantaneous shut-in pressure, corrected to the hole bottom by adding the hydrostatic pressure of the wellbore fluid column, is the fracture propagation pressure. Fracture gradient is the fracture propagation pressure divided by the formation depth.

Measuring Rock Matrix Stress—The minimum horizontal rock matrix stress is then:

$$\bar{\sigma}_{h1} = \text{propagation pressure} - \text{pore pressure}$$

This stress is of particular interest because it is the stress which propping agents must withstand in order to hold the fracture open. In actual practice pore pressure can be equated to static reservoir pressure provided fracture propagation pressure is measured before significant frac fluid is injected to raise the pore pressure level near the wellbore.

It should be noted that proppant in the critical area near the wellbore is subjected to more stress than that further away due to lower pore pressure near the wellbore in the producing process, Figure 8-8. This effect may be significant at high drawdown pressures.

Fracture Orientation

Fracture Propagates Perpendicular to Smallest Stress—Rocks fracture in a plane perpendicular to

Belton Unit, Cass County, Missouri

Re: Injection Volumes

Injection volumes are determined by using analogy from previous squirrel sandstone water floods that contain similar reservoir characteristics. In the case of the Belton Unit we plan to inject 1 barrel of water for every 1 net foot of oil bearing sandstone. (assuming this rate does not exceed the maximum approved injection pressure) Depending on the duration and impact of the surrounding wells some injection wells may ultimately inject 3 barrels of water for every 1 net foot of oil bearing sandstone.

Due to the permeability variance of the reservoir we typically will not exceed 15' of perforations per injection well.

Example;

Year 1

15' perforations x 1 bbl/ft = 15 BPD injection rate

Year 2

15' perforations x 2 bbls/ft = 30 BPD injection rate

Year 3

15' perforations x 3 bbls/ft = 45 BPD injection rate

We typically do not exceed 3 bbls/ft injection rate, which is why we are requesting only 50 BPD rate.

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|-------|------|--------------|----------------|--|
| Belton Unit | R-1 | 569 FROM (M) SEC LINE 2412 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 619' | O | 04/08/1999 | 04/13/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-2 | 1489 FROM (N) SEC LINE 1624 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 600' | O | 06/04/1999 | 06/10/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-3 | 1434 FROM (N) SEC LINE 2423 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 665' | O | 02/29/2000 | 03/02/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-4 | 3232 FROM (N) SEC LINE 2013 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 680' | O | 03/02/2000 | 03/07/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-5 | 168 FROM (N) SEC LINE 2406 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 639' | O | 04/23/2000 | 04/25/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-6 | 171 FROM (N) SEC LINE 2890 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 608' | O | 04/27/2000 | 04/28/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-7 | 571 FROM (N) SEC LINE 2901 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 646' | O | 05/01/2000 | 05/02/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-8 | 1033 FROM (N) SEC LINE 8841 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 655' | O | 05/05/2000 | 05/08/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-9 | 1008 FROM (N) SEC LINE 2418 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 651' | O | 05/03/2000 | 05/05/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|--------|------|--------------|----------------|--|
| Belton Unit | R-10 | 1005 FROM (N) SEC LINE 1480 FROM (E) SEC LINE | K.R.E.D. | 627' | O | 05/15/2000 | 05/16/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-11 | SEC. 16 T. 46 N.R. 33W 567 FROM (N) SEC LINE 1406 FROM (E) SEC LINE | K.R.E.D. | 626' | O | 05/10/2000 | 05/12/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-12 | SEC. 16 T. 46 N.R. 33W 142 FROM (N) SEC LINE 1451 FROM (E) SEC LINE | K.R.E.D. | 642' | O | 05/16/2000 | 05/18/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-13 | SEC. 16 T. 46 N.R. 33W 144 FROM (N) SEC LINE 1483 FROM (E) SEC LINE | K.R.E.D. | 620' | O | 05/22/2000 | 05/24/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-14 | SEC. 16 T. 46 N.R. 33W 174 FROM (N) SEC LINE 3335 FROM (E) SEC LINE | K.R.E.D. | 637' | O | 09/17/2001 | 09/19/2001 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-15 | SEC. 16 T. 46 N.R. 33W 573 FROM (N) SEC LINE 3335 FROM (E) SEC LINE | K.R.E.D. | 621' | O | 12/15/2000 | 12/20/2000 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-16 | SEC. 16 T. 46 N.R. 33W 3135 FROM (N) SEC LINE 2518 FROM (E) SEC LINE | K.R.E.D. | 652.5' | O | 10/13/2003 | 10/15/2003 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-17 | SEC. 16 T. 46 N.R. 33W 440 FROM (N) SEC LINE 1011 FROM (E) SEC LINE | K.R.E.D. | 686' | O | 01/29/2004 | 01/30/2004 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-18 | SEC. 16 T. 46 N.R. 33W 2810 FROM (N) SEC LINE 1033 FROM (E) SEC LINE | K.R.E.D. | 914.5' | O | 01/07/2004 | 01/09/2004 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|--------|---------|--------------|----------------|--|
| Belton Unit | R-19 | 4132 FROM (N) SEC LINE 2070 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 621.5' | O | 02/12/2004 | 02/13/2004 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-20 | 4132 FROM (N) SEC LINE 2045 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 661' | O | 01/18/2008 | 01/22/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-21 | 4160 FROM (N) SEC LINE 2045 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 635' | O | 01/14/2008 | 01/16/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-22 | 4160 FROM (N) SEC LINE 1605 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 660' | O | 12/04/2008 | N/A | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-23 | 3320 FROM (N) SEC LINE 2425 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 660' | O | U | N/A | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-24 | 3320 FROM (N) SEC LINE 2425 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 658' | O | 01/25/2008 | N/A | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-25 | 3320 FROM (N) SEC LINE 2045 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 660' | O | U | N/A | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | R-1-1 | 368 FROM (N) SEC LINE 2064 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 623' | Plugged | 07/26/2000 | 08/31/2000 | 4 1/2" casing cemented to surface Plugged 6033 118 - surface current 6033 to surface |
| Belton Unit | R-1-2 | 795 FROM (N) SEC LINE 2053 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 627' | I | U | U | 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|---|----------|--------|---------|--------------|----------------|--|
| Belton Unit | R1-3 | 1214 FROM (N) SEC LINE 21672 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 635' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | R1-4 | 1877 FROM (N) SEC LINE 2202 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 641' | I | 08/25/2000 | 08/29/2000 | 4 1/2" casing cemented to surface |
| Belton Unit | R1-5 | 790 FROM (N) SEC LINE 2114 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 637' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | R1-6 | 367 FROM (N) SEC LINE 2187 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 644' | Plugged | U | U | 4 1/2" casing cemented to surface Plugged 10/27/12 - squeezed cement 10/27/12 to surface |
| Belton Unit | WSW-1 | 843 FROM (N) SEC LINE 3521 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 891' | W | 04/16/2001 | 04/14/2001 | Squeezed |
| Belton Unit | C-18 | 110 FROM (N) SEC LINE 1241 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 571' | Plugged | U | U | 4 1/2" casing cemented to surface Plugged 10/27/12 - squeezed cement 10/27/12 to surface |
| Belton Unit | RW-7 | 374 FROM (N) SEC LINE 3115 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 638' | Plugged | 02/10/2004 | 02/11/2004 | 4 1/2" casing cemented to surface Plugged 10/27/12 - squeezed cement 10/27/12 to surface |
| Belton Unit | RW-8 | 3048 FROM (N) SEC LINE 2714 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 641.5' | I | 02/12/2004 | 02/13/2004 | 4 1/2" casing cemented to surface |
| Belton Unit | RW-9 | 3505 FROM (N) SEC LINE 2770 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 647.5' | I | 01/13/2004 | 01/15/2004 | 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|-------|------|--------------|----------------|--|
| Belton Unit | RW-10 | 3055 FROM (N) SEC LINE 2055 FROM (E) SEC LINE | K.R.E.D. | 678' | I | 02/02/2004 | 02/03/2004 | 4 1/2" casing cemented to surface |
| Belton Unit | RW-11 | 3411 FROM (S) SEC LINE 3283 FROM (E) SEC LINE | K.R.E.D. | 652' | I | 02/04/2004 | 02/06/2004 | 4 1/2" casing cemented to surface |
| Belton Unit | RW-13 | 3453 FROM (S) SEC LINE 1842 FROM (E) SEC LINE | K.R.E.D. | 697' | I | 02/06/2004 | 02/09/2004 | 4 1/2" casing cemented to surface |
| Belton Unit | RW-15 | 3480 FROM (N) SEC LINE 3205 FROM (W) SEC LINE | K.R.E.D. | 660' | I | 11/26/2008 | N/A | 4 1/2" casing cemented to surface |
| Belton Unit | RW-16 | 3740 FROM (N) SEC LINE 1825 FROM (E) SEC LINE | K.R.E.D. | 660' | I | 12/02/2008 | N/A | 4 1/2" casing cemented to surface |
| Belton Unit | RW-19 | 3540 FROM (N) SEC LINE 1825 FROM (W) SEC LINE | K.R.E.D. | 661' | I | 12/08/2008 | N/A | 4 1/2" casing cemented to surface |
| Belton Unit | AD-1 | 220 FROM (S) SEC LINE 2420 FROM (E) SEC LINE | K.R.E.D. | 615' | O | 12/03/2007 | 01/04/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-2 | 220 FROM (S) SEC LINE 2000 FROM (E) SEC LINE | K.R.E.D. | 657' | O | 12/06/2007 | 12/10/2007 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-3 | 212 FROM (S) SEC LINE 3806 FROM (E) SEC LINE | K.R.E.D. | 637' | O | 08/31/1987 | U | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|---|----------|-------|---------|--------------|----------------|--|
| Belton Unit | AD-4 | 220 FROM (N) SEC LINE 425 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 666' | O | 07/14/1987 | 07/16/1987 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-5 | 220 FROM (N) SEC LINE 416 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 679' | O | 06/21/1987 | 06/25/1987 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-6 | 204 FROM (N) SEC LINE 516 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 708' | O | 01/31/2008 | 02/19/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-7 | 254 FROM (N) SEC LINE 298 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 630' | O | 12/12/2007 | 12/14/2007 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-8 | 630 FROM (N) SEC LINE 3401 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 622' | O | 05/14/1999 | 05/27/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-9 | 644 FROM (N) SEC LINE 385 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 662' | Plugged | 08/25/1987 | 1987 | 4 1/2" casing cemented to surface Squeezed cement into formation to surface on 04/04/2012 |
| Belton Unit | AD-10 | 662 FROM (N) SEC LINE 429 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 659' | O | 05/25/1987 | 07/21/1987 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-11 | 621 FROM (N) SEC LINE 475 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 665' | Plugged | 1987 | 1987 | 4 1/2" casing cemented to surface Squeezed cement into formation to surface on 03/19/2012 |
| Belton Unit | AD-12 | 1210 FROM (N) SEC LINE 3807 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 710' | O | 01/23/2008 | 02/26/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (O = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|---|----------|--------|---------|--------------|----------------|--|
| Belton Unit | AD-13 | 1100 FROM (N) SEC LINE 2420 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 700' | Plugged | 12/21/2007 | N/A | Cemented from bottom to top on 12/27/2007 |
| Belton Unit | AD-14 | 1061 FROM (N) SEC LINE 2405 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 609' | O | 04/21/1999 | 05/13/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-15 | 1210 FROM (N) SEC LINE 3501 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 617' | O | 11/13/1989 | 11/14/1989 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-16 | 1100 FROM (N) SEC LINE 4225 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 666' | Plugged | 07/23/1987 | U-1987 | 4 1/2" casing cemented to surface Squeezed cement into formation to surface on 04/04/2012 |
| Belton Unit | AD-17 | 1105 FROM (N) SEC LINE 4061 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 647' | O | U | U | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-18 | 1100 FROM (N) SEC LINE 300 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 676.5' | O | 01/02/2008 | 02/26/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-21 | 1535 FROM (N) SEC LINE 3809 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 656' | O | 09/11/2003 | 09/12/2003 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-22 | 1539 FROM (N) SEC LINE 4212 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 650' | O | 06/13/1999 | 06/18/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-23 | 1541 FROM (N) SEC LINE 4044 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D | 644' | O | 09/09/2003 | 09/11/2003 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|---|----------|--------|------|--------------|----------------|--|
| Belton Unit | AD-24 | 1340 FROM (N) SEC LINE 300 FROM (E) SEC LINE | K.R.E.D. | 672.5 | O | 12/27/2007 | 02/06/2008 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-28 | SEC. 9 T. 46 N.R. 33W 1111 FROM (N) SEC LINE 1143 FROM (E) SEC LINE | K.R.E.D. | 629' | O | 07/08/1999 | 07/14/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | AD-29 | SEC. 9 T. 46 N.R. 33W 1111 FROM (N) SEC LINE 1143 FROM (E) SEC LINE | K.R.E.D. | 625' | O | 06/18/1999 | 07/07/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | ADI-18 | SEC. 9 T. 46 N.R. 33W 1151 FROM (N) SEC LINE 1103 FROM (E) SEC LINE | K.R.E.D. | 651.5' | I | 10/09/2003 | 10/10/2003 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-19 | SEC. 9 T. 46 N.R. 33W 1151 FROM (N) SEC LINE 1141 FROM (E) SEC LINE | K.R.E.D. | 654.5' | I | 10/07/2003 | 10/08/2003 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-24 | SEC. 9 T. 46 N.R. 33W 1391 FROM (N) SEC LINE 3021 FROM (E) SEC LINE | K.R.E.D. | 662' | I | 09/16/2003 | 09/17/2003 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-25 | SEC. 9 T. 46 N.R. 33W 1352 FROM (N) SEC LINE 2965 FROM (E) SEC LINE | K.R.E.D. | 651.5' | I | 09/12/2003 | 09/15/2003 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-26 | SEC. 9 T. 46 N.R. 33W 1451 FROM (N) SEC LINE 1453 FROM (E) SEC LINE | K.R.E.D. | 650.5' | I | 09/17/2003 | 09/19/2003 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-27 | SEC. 9 T. 46 N.R. 33W 1380 FROM (N) SEC LINE 580 FROM (E) SEC LINE | K.R.E.D. | 674.1' | I | 01/04/2008 | 04/16/2008 | 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|--------|------|--------------|----------------|-----------------------------------|
| Belton Unit | ADI-30 | 880 FROM (N) SEC LINE 2286 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 627.7' | I | 12/19/2007 | 04/16/2008 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-31 | 860 FROM (N) SEC LINE 3613 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 633' | I | 05/27/1999 | 06/04/1999 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-32 | 871 FROM (N) SEC LINE 1034 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 649' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-33 | 881 FROM (N) SEC LINE 1454 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 642' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-34 | 879 FROM (N) SEC LINE 1891 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 663' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-37 | 440 FROM (N) SEC LINE 220 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 618.2' | I | 12/13/2007 | 04/16/2008 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-38 | 441 FROM (N) SEC LINE 1760 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 668.9' | I | 12/17/2007 | 04/16/2008 | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-39 | 441 FROM (N) SEC LINE 405 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 631' | I | U | U | 4 1/2" casing cemented to surface |
| Belton Unit | ADI-40 | 441 FROM (N) SEC LINE 4165 FROM (E) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 664' | I | U | U | 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|----------|---------|--------------|----------------|--|
| Belton Unit | AD1-41 | 442' FROM (N/S) SEC LINE 1909' FROM (E/W) SEC LINE | K.R.E.D. | 600' est | I | ✓ | ✓ | 4 1/2" casing cemented to surface |
| Belton Unit | OH-1 | SEC. 9 T. 46 N.R. 33W 2815' FROM (N/S) SEC LINE 2406' FROM (E/W) SEC LINE | K.R.E.D | 600' est | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | OH-2 | SEC. 16 T. 46 N.R. 33W 2204' FROM (N/S) SEC LINE 3051' FROM (E/W) SEC LINE | K.R.E.D | 600' est | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | OH-3 | SEC. 16 T. 46 N.R. 33W 1931' FROM (N/S) SEC LINE 2408' FROM (E/W) SEC LINE | K.R.E.D | 600' est | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | OH-4 | SEC. 16 T. 46 N.R. 33W 1940' FROM (N/S) SEC LINE 2818' FROM (E/W) SEC LINE | K.R.E.D | 600' est | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | OH-5 | SEC. 16 T. 46 N.R. 33W 833' FROM (N/S) SEC LINE 2124' FROM (E/W) SEC LINE | K.R.E.D | 600' est | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Belton Unit | OH-6 | SEC. 16 T. 46 N.R. 33W 919' FROM (N/S) SEC LINE 2416' FROM (E/W) SEC LINE | K.R.E.D | 600' est | Plugged | ✓ | ✓ | Squeezed cement into formation to surface |
| Belton Unit | OH-7 | SEC. 16 T. 46 N.R. 33W 753' FROM (N/S) SEC LINE 2406' FROM (E/W) SEC LINE | K.R.E.D | 600' est | Plugged | ✓ | ✓ | Squeezed cement into formation to surface |
| Belton Unit | OH-8 | SEC. 16 T. 46 N.R. 33W 138' FROM (N/S) SEC LINE 2921' FROM (E/W) SEC LINE | K.R.E.D | 600 est | Plugged | ✓ | ✓ | Squeezed cement into formation to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|----------|---------|--------------|----------------|--|
| Belton Unit | OH-9 | 604 FROM (N)(S) SEC LINE 5229 FROM (E)(W) SEC LINE | K.R.E.D. | 600' est | Plugged | ✓ | ✓ | Squeezed cement into formation to surface |
| Belton Unit | UK-1 | SEC. 16 T. 46 N.R. 33W 1530 FROM (N)(S) SEC LINE 1300 FROM (E)(W) SEC LINE | K.R.E.D. | U | Plugged | ✓ | ✓ | 4 1/2" casing cemented to surface Squeezed cement into formation to surface on 04/17/2012 |
| Belton Unit | UK-2 | SEC. 16 T. 46 N.R. 33W 1371 FROM (N)(S) SEC LINE 1340 FROM (E)(W) SEC LINE | K.R.E.D. | U | Plugged | ✓ | ✓ | 4 1/2" casing cemented to surface Squeezed cement into formation to surface on 04/17/2012 |
| Belton Unit | UK-3 | SEC. 16 T. 46 N.R. 33W 1353 FROM (N)(S) SEC LINE 1391 FROM (E)(W) SEC LINE | K.R.E.D. | U | O | ✓ | ✓ | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Clark-Berry | CB-1 | SEC. 16 T. 46 N.R. 33W 1291 FROM (N)(S) SEC LINE 1219 FROM (E)(W) SEC LINE | K.R.E.D. | 625' | O | 03/22/1999 | ✓ | 2 7/8" with 1" tubing and insert pump |
| Clark-Berry | CB-2 | SEC. 16 T. 46 N.R. 33W 1226 FROM (N)(S) SEC LINE 1006 FROM (E)(W) SEC LINE | K.R.E.D. | 625' | O | ✓ | ✓ | 2 7/8" with 1" tubing and insert pump |
| Clark-Berry | CB-3 | SEC. 16 T. 46 N.R. 33W 1210 FROM (N)(S) SEC LINE 1072 FROM (E)(W) SEC LINE | K.R.E.D. | 625' | O | 03/25/1999 | 03/30/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Clark-Berry | CB-4 | SEC. 16 T. 46 N.R. 33W 1281 FROM (N)(S) SEC LINE 1124 FROM (E)(W) SEC LINE | K.R.E.D. | 619' | O | 03/30/1999 | 04/02/1999 | 4 1/2" casing cemented to surface 2 3/8" tubing 3/4" rods and insert pump |
| Clark-Berry | CB-1 | SEC. 16 T. 46 N.R. 33W 1050 FROM (N)(S) SEC LINE 1011 FROM (E)(W) SEC LINE | K.R.E.D. | 629' | I | 03/22/1999 | 03/25/1999 | 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|-------|-------|------|--------------|----------------|--------------|
| Clark-Berry | CBI-2 | 3487 FROM (N/S) SEC LINE 3533 FROM (E/W) SEC LINE SEC. 16 T. 46 N.R. 33W FROM (N/S) SEC LINE FROM (E/W) SEC LINE SEC. T. N.R. FROM (N/S) SEC LINE FROM (E/W) SEC LINE | | | | | | |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|---------|-------|---------|--------------|----------------|--|
| Belton Unit | R-26 | 5100 FROM (N) SEC LINE 3194 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 643' | Plugged | 03/08/2012 | Not complete | Set 21 feet of 8 5/8" surface pipe Squeezed cement from 643' to surface to plug well on 04/17/2012 |
| Belton Unit | R-27 | 4810 FROM (N) SEC LINE 3818 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 700' | O | 04/06/2012 | | 685' of 2 7/8" casing cemented to surface |
| Belton Unit | R-28 | 4451 FROM (N) SEC LINE 3814 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 681' | O | 04/10/2012 | | 656' of 2 7/8" casing cemented to surface |
| Belton Unit | R-29 | 4457 FROM (N) SEC LINE 1676 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 750' | O | 03/24/2012 | 05/10/2012 | 740' of 4 1/2" casing cemented to surface |
| Belton Unit | R-30 | 4653 FROM (N) SEC LINE 1134 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 750' | O | 03/23/2012 | 04/30/2012 | 697' of 4 1/2" casing cemented to surface |
| Belton Unit | R-31 | 5288 FROM (N) SEC LINE 1302 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 750' | O | 03/27/2012 | 04/27/2012 | 740' of 4 1/2" casing cemented to surface |
| Belton Unit | R-32 | 4894 FROM (N) SEC LINE 1210 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 750' | O | 03/14/2012 | 05/25/2012 | 743' of 4 1/2" casing cemented to surface |
| Belton Unit | R-33 | 4924 FROM (N) SEC LINE 1248 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 700' | O | 03/21/2012 | 05/10/2012 | 663' of 4 1/2" casing cemented to surface |
| Belton Unit | R-36 | 5353 FROM (N) SEC LINE 1634 FROM (E) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D | 760' | O | 04/02/2012 | 04/30/2012 | 733.5' of 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|---------|-------|------|--------------|----------------|---|
| Belton Unit | R-41 | SEC. 16 FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 643' | O | 06/12/2012 | Not complete | of 4 1/2" casing cemented to surface |
| Belton Unit | R-42 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 980' | O | 06/06/2012 | Not complete | 687' of 4 1/2" casing cemented to surface |
| Belton Unit | R-43 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 770' | O | 05/09/2012 | 05/30/2012 | 740' of 4 1/2" casing cemented to surface |
| Belton Unit | R-44 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 760' | O | 05/11/2012 | 05/31/2012 | 727' of 4 1/2" casing cemented to surface |
| Belton Unit | R-47 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 760' | O | 05/08/2012 | 06/01/2012 | 728' of 4 1/2" casing cemented to surface |
| Belton Unit | R-48 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 770' | O | 07/18/2012 | Not complete | 750' of 2 7/8" casing cemented to surface |
| Belton Unit | R-49 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 730' | O | 06/30/2012 | | 718' of 2 7/8" casing cemented to surface |
| Belton Unit | R-51 | SEC. 16 T. 46 N.R. 33W FROM (N) (S) SEC LINE FROM (E) (W) SEC LINE | K.R.E.D | 730' | O | 06/08/2012 | | 700' of 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|-------|------|--------------|----------------|---|
| Belton Unit | RW-22 | 1145 FROM (N) 6 SEC LINE 1063 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 06/01/2012 | Not complete | 696' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-23 | 1128 FROM (N) 5 SEC LINE 1133 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 05/22/2012 | 07/06/2012 | 691' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-24 | 1127 FROM (N) 5 SEC LINE 1141 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 05/30/2012 | Not complete | 565' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-25 | 5119 FROM (N) 5 SEC LINE 1834 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 750' | I | 05/18/2012 | 07/06/2012 | 711' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-26 | 4648 FROM (N) 5 SEC LINE 1865 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 05/23/2012 | 07/17/2012 | 692' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-27 | 4648 FROM (N) 5 SEC LINE 2204 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 05/29/2012 | 07/17/2012 | 682' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-37 | 5126 FROM (N) 5 SEC LINE 3208 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 720' | I | 05/14/2012 | 07/09/2012 | 695' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-38 | 5120 FROM (N) 5 SEC LINE 3219 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/03/2012 | Not complete | 687' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-39 | 5117 FROM (N) 5 SEC LINE 3270 FROM (E) W SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 720' | I | 05/16/2012 | 07/09/2012 | 686' of 2 7/8" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|-------|------|--------------|----------------|---|
| Belton Unit | RW-46 | 5105 FROM (N) SEC LINE 2465 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/03/2012 | Not complete | 687' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-43 | 4402 FROM (N) SEC LINE 3135 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 700' | I | 06/14/2012 | 07/17/2012 | 672' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-44 | 4685 FROM (N) SEC LINE 3185 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 06/28/2012 | Not complete | 690' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-45 | 4241 FROM (N) SEC LINE 3173 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/11/2012 | | 684' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-46 | 4245 FROM (N) SEC LINE 3184 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/13/2012 | | 687' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-47 | 4247 FROM (N) SEC LINE 2413 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/13/2012 | | 689' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-48 | 4248 FROM (N) SEC LINE 2415 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/13/2012 | | 681' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-49 | 4691 FROM (N) SEC LINE 2412 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 06/13/2012 | 07/17/2012 | 675' of 2 7/8" casing cemented to surface |
| Belton Unit | RW-50 | 4682 FROM (N) SEC LINE 2424 FROM (W) SEC LINE SEC. 16 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 06/30/2012 | Not complete | 659' of 2 7/8" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|---|----------|-------|------|--------------|----------------|---|
| Belton Unit | AD 9-2 | 403 FROM (N) SEC LINE 1500 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 03/30/2012 | 05/07/2012 | 741' of 4 1/2" casing cemented to surface |
| Belton Unit | AD11-2 | 600 FROM (N) SEC LINE 534 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 750' | O | 03/12/2012 | 04/27/2012 | 737' of 4 1/2" casing cemented to surface |
| Belton Unit | AD16-2 | 151 FROM (N) SEC LINE 1084 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 03/28/2012 | 04/27/2012 | 739' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-20 | 1520 FROM (N) SEC LINE 1891 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 03/29/2012 | 06/11/2012 | 740' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-26 | 1485 FROM (N) SEC LINE 1900 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 770' | O | 04/05/2012 | 06/13/2012 | 745' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-27 | 1485 FROM (N) SEC LINE 1470 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 03/30/2012 | 06/13/2012 | 741' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-31 | 2346 FROM (N) SEC LINE 2342 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 701' | O | 04/12/2012 | Not complete | 688' of 2 7/8" casing cemented to surface |
| Belton Unit | AD-32 | 2408 FROM (N) SEC LINE 1816 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 04/06/2012 | 06/28/2012 | 745' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-33 | 2435 FROM (N) SEC LINE 1470 FROM (W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 760' | O | 04/03/2012 | 07/04/2012 | 741' of 4 1/2" casing cemented to surface |

AREA OF REVIEW WELLS (1/2 MILE RADIUS AROUND WELL) THAT PENETRATE THE INJECTION INTERVAL

INSTRUCTIONS

In the grid below, place the descriptions of area of review wells (1/2 mile radius around well) of public record that penetrate the proposed injection zone. Complete the following: lease name, well number, location, owner, depth in feet, type of well (Oil = O, Gas = G, Water = W, Injection = I, Strat Test = S, Unknown = U, Other - specify), date spudded, date completed, and construction of the well. Give a brief but accurate description of the well's construction including all plugging and/or completion of information, detailing the cement, casing, and subsurface casing information.

| LEASE | WELL NO. | LOCATION | OWNER | DEPTH | TYPE | DATE SPULDED | DATE COMPLETED | CONSTRUCTION |
|-------------|----------|--|----------|-------|------|--------------|----------------|---|
| Belton Unit | AD 3-2 | 208 FROM (N/S) SEC LINE 1544 FROM (E/W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 770' | O | 06/15/2012 | Not complete | 713' of 4 1/2" casing cemented to surface |
| Belton Unit | AD 4-2 | 256 FROM (N/S) SEC LINE 1125 FROM (E/W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 770' | O | 06/22/2012 | | 724' of 4 1/2" casing cemented to surface |
| Belton Unit | AD 5-2 | 146 FROM (N/S) SEC LINE 640 FROM (E/W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 770' | O | 06/20/2012 | | 721' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-34 | 243 FROM (N/S) SEC LINE 1076 FROM (E/W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 700' | O | 05/04/2012 | 07/09/2012 | 686' of 4 1/2" casing cemented to surface |
| Belton Unit | AD-42 | 382 FROM (N/S) SEC LINE 446 FROM (E/W) SEC LINE SEC. 9 T. 46 N.R. 33W | K.R.E.D. | 730' | I | 07/19/2012 | Not complete | 686' of 2 7/8" casing cemented to surface |
| | | FROM (N/S) SEC LINE FROM (E/W) SEC LINE SEC. T. N.R. | | | | | | |
| | | FROM (N/S) SEC LINE FROM (E/W) SEC LINE SEC. T. N.R. | | | | | | |
| | | FROM (N/S) SEC LINE FROM (E/W) SEC LINE SEC. T. N.R. | | | | | | |
| | | FROM (N/S) SEC LINE FROM (E/W) SEC LINE SEC. T. N.R. | | | | | | |

AFFIDAVIT OF PUBLICATION

(Space above for recording information)

STATE OF MISSOURI
COUNTY OF CASS

SS.

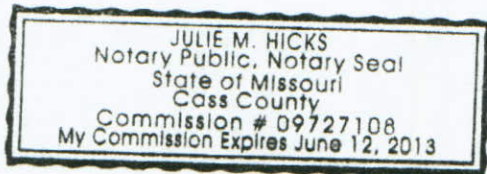
I, Janis Anslinger, being duly sworn according to the Oath of Office, depose and say that I am the Classified Ad Manager of the Cass County Missourian, a weekly newspaper of general circulation in the County of Cass, State of Missouri, where said newspaper has been admitted to the Post Office as second class matter in the City of Harrisonville, Missouri, and which newspaper has been published consecutively for a period of three years and has bona fide subscribers, voluntarily engaged as subscribers, and paid or agreed to pay a stated price for a subscription for a definite period of time, and that such newspaper complies with the provisions of Section 493.050, Revised Statutes of Missouri 2000, and Section 59.310, Revised Statutes of Missouri 2000. The affixed notice appeared in said newspaper the following consecutive issues:

1st Insertion: Vol. 132 No. 37 29 day of June 2012
2nd Insertion: Vol. _____ No. _____ day of _____
3rd Insertion: Vol. _____ No. _____ day of _____
4th Insertion: Vol. _____ No. _____ day of _____
5th Insertion: Vol. _____ No. _____ day of _____

Janis Anslinger
Janis Anslinger, Classified Ad Manager

Subscribed and sworn to before me on this 29 day of June, 2012

Julie M. Hicks



66210 has applied for 32 injection well permits to be drilled to an approximate depth of 650 feet. Saline water will be injected into the Squirrel Sandstone formation for an Enhanced Oil Recovery Project at the following locations:

#RW-71 5,095' from S line/1,867' from E line, Section 16, Township 46N, Range 33W
#RW-72 3,851' from S line/3,199' from E line, Section 16, Township 46N, Range 33W
#RW-73 3,842' from S line/3,195' from E line, Section 16, Township 46N, Range 33W
#RW-74 3,856' from S line/2,763' from E line, Section 16, Township 46N, Range 33W
#RW-75 3,847' from S line/2,763' from E line, Section 16, Township 46N, Range 33W
#RW-76 3,878' from S line/3,198' from E line, Section 16, Township 46N, Range 33W
#RW-77 3,473' from S line/3,190' from E line, Section 16, Township 46N, Range 33W
#RW-78 3,475' from S line/2,767' from E line, Section 16, Township 46N, Range 33W
#RW-79 3,468' from S line/2,761' from E line, Section 16, Township 46N, Range 33W
#RW-80 3,113' from S line/3,182' from E line, Section 16, Township 46N, Range 33W
#RW-81 3,106' from S line/3,176' from E line, Section 16, Township 46N, Range 33W
#RW-82 3,116' from S line/2,785' from E line, Section 16, Township 46N, Range 33W
#RW-83 3,107' from S line/2,778' from E line, Section 16, Township 46N, Range 33W
#ADI-2 2,610' from S line/2,105' from E line, Section 9, Township 46N, Range 33W
#ADI-3 2,614' from S line/1,695' from E line, Section 9, Township 46N, Range 33W
#ADI-3-2 2,610' from S line/1,692' from E line, Section 9, Township 46N, Range 33W
#ADI-4 2,628' from S line/1,280' from E line, Section 9, Township 46N, Range 33W
#ADI-4-2 2,622' from S line/1,275' from E line, Section 9, Township 46N, Range 33W
#ADI-9 2,183' from S line/2,119' from E line, Section 9, Township 46N, Range 33W
#ADI-9-2 2,179' from S line/2,115' from E line, Section 9, Township 46N, Range 33W
#ADI-10 2,198' from S line/1,695' from E line, Section 9, Township 46N, Range 33W
#ADI-10-2 2,192' from S line/1,690' from E line, Section 9, Township 46N, Range 33W
#ADI-11 2,210' from S line/1,287' from E line, Section 9, Township 46N, Range 33W
#ADI-11-2 2,206' from S line/1,285' from E line, Section 9, Township 46N, Range 33W
#ADI-16 1,719' from S line/2,108' from E line, Section 9, Township 46N, Range 33W
#ADI-16-2 1,714' from S line/2,105' from E line, Section 9, Township 46N, Range 33W
#ADI-17 1,756' from S line/1,700' from E line, Section 9, Township 46N, Range 33W
#ADI-17-2 1,752' from S line/1,695' from E line, Section 9, Township 46N, Range 33W
#ADI-17-3 1,749' from S line/1,702' from E line, Section 9, Township 46N, Range 33W
#ADI-23 1,794' from S line/2,071' from E line, Section 9, Township 46N, Range 33W
#ADI-23-2 1,789' from S line/2,067' from E line, Section 9, Township 46N, Range 33W

Written comments or requests for additional information regarding such wells should be directed within fifteen (15) days of this notice to the address below.

State Geologist
Missouri Oil & Gas Council
P.O. Box 250
Rolla, MO 65401

MISSOURI
Mechanical Integrity Test

RECEIVED

FEB 22 2013

Mo Oil & Gas Council

Test Date: 2/1/2013

Operator: Kansas Resources Exploration & Development, LLC

Address: 9393 W. 110th St. Ste. 500

Overland Park, Kansas 66210

Contact: Brad Kramer

Phone: 913-669-2253

Lease: Belton Unit

Well No.: RW-76

County: Cass

Permit No.: 20,985

TEST INFORMATION

Pressure

☒

Radioactive Tracer Survey

☐

Temperature Survey

☐

| | Run #1 | Run #2 | Run #3 | Run #4 |
|-------------------------|--------|--------|--------|--------|
| Start Time: | 9:20 | | | |
| End Time: | 9:50 | | | |
| Length of Test: | 30 min | | | |
| Initial Pressure (PSI): | 550 # | | | |
| Ending Pressure (PSI): | 550 # | | | |
| Pressure Change: | 0 # | | | |

Fluid Used For Test (water, nitrogen, CO2, etc.): Air

Perforations: Well Not Perfed Yet

Comments: X 433 =

Pressured Casing up to 550

The bottom of the tested zone is shut in with Rubber Plug at a depth of 693 feet.
In signing the form below, it is certified that the above indicated well was tested for mechanical integrity on the test date shown above.

Signature

Robert Reed

Operator, Contact Person or Approved Agent

Contractor

Title

FOR INTERNAL USE ONLY

Results were: Satisfactory X Not Satisfactory

Computer Update: X

Remarks:

State Agent: SAUER

Witnessed: Yes No X

!! FILE WITH PERMIT !!